

Ad
a bulging portion at the second rear face portion of the lower base cloth, so that the second rear face portion of the lower base cloth is more extended toward the occupant than the first rear face portion of the lower base cloth.

REMARKS

The specification and certain claims are amended to overcome the objections to the specification and formal rejections of the claims. Claims 1 and 4 also are amended to better define the present invention over the cited art. Claims 1-6 remain, with no claim previously allowed.

The applicant respectfully requests reconsideration of this application.

A certified copy is submitted herewith to support the applicant's claim for foreign priority.

A substitute sheet of formal drawing containing Figs. 1 and 2, labeled --Prior Art-- is submitted herewith in response to the Examiner's requirement.

The Examiner's amendments to the specification are appreciated by the undersigned. Further amendments to the specification are submitted with this response, to overcome the objections of record and for further grammatical correction.

Turning to the claims, Claims 1, 3, and 4 are amended for clarification, in response to the rejections under 35 U.S.C. § 112, second paragraph. In that regard, the Examiner's comment about "like" is noted and that word is removed from the claims. However, the claims retain the description "substantially closed box shape" because the applicant believes that term as used herein is definite in context. The airbag of the present invention, when inflated, does assume generally the shape of a box, albeit not a typical

cardboard box having 90° corners and flat inflexible sides. However, the applicant will consider any word the Examiner may suggest as an alternative to “box”.

Turning to the substantive rejection, Claims 1-6 are rejected as unpatentable over Japanese patent 9-99795 in view of *Krickl* (5,454,594). The applicant respectfully traverses that rejection as possibly applied to the amended claims.

According to the present invention, the airbag is formed of an upper piece and a lower piece. The upper piece and lower piece each are formed in a generally box shape. Therefore, it is easy to form a configuration where the second rear face portion of the lower base cloth (4c, in the embodiment of Figs. 4A and 4B) is more extended toward the occupant than the first rear face portion (3c) of the upper base cloth 3. This arrangement is discussed from line 23 of page 4 through line 1 of page 5.

Claims 1 and 4 now recite limitations based on that novel design. In particular, those claims now call for only the lower joining line (defined between the second rear face portion 4c and the second side portion 4b) among that joining line and the upper joining line (between first rear face portion 3c and side portions 3b), is smoothly curved so that a middle portion of the joining line projects toward the occupant. This arrangement forms a bulging portion at the second rear face portion of the lower base cloth, so that the second rear face portion of the lower base cloth is more extended toward the occupant than the first rear face portion of the upper base cloth. The benefit obtained from that claimed arrangement is described from lines 20 to 22 of page 4, and lines 4 and 5 of page 5. Namely, the volume of the lower base cloth abutting the abdomen of an occupant is increased, and the surface contour of the bulging portion can be formed smoothly, thereby improving safety to

the occupant.

Contrasting the structural and functional aspects of the present invention with the cited art, JP 9-99795 discloses an airbag wherein a middle portion of the rear face projects toward an occupant. However, the whole of the rear face (including not only a lower rear face but also an upper rear face) projects toward the occupant, as best understood from Figs. 2 and 5 of '795. Accordingly, with the structure of the airbag disclosed in that reference, it would be difficult to get the results obtained with the present invention, namely, in which the rear face portion of the lower base cloth is more extended toward the occupant than the rear face portion of the upper base cloth. Moreover, nothing in JP '795 is seen to teach or suggest any such structural and functional modification of that reference.

Krickl discloses an airbag including two sheets 14 and 16. However, that reference does not disclose an airbag formed by joining two base cloths comprising an upper piece and a lower piece, to form a substantially closed box shape. To the contrary, one of the two sheets in *Krickl* is formed in generally a box shape by itself. Therefore, it would be difficult to form a configuration where a lower rear face portion of the airbag is more extended toward an occupant than an upper rear face portion of that airbag.

Furthermore, even if an airbag with sections 14 and 16 of *Krickl* is applied to an automobile instrument panel, such as the panel 2 shown in Fig. 6 of the present application, that arrangement would not produce an airbag with a volume of the lower base cloth abutting on the abdomen of an occupant in the vehicle. This conclusion is illustrated by referring to the pencil sketches enclosed herewith and labeled Fig. A1 through A4. To produce those sketches, the present applicant made a paper model duplicating an enlarged

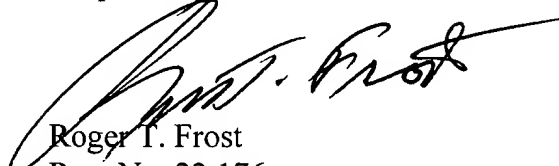
copy of Fig. 2 in *Krickl* by cutting out the web sections 14 and 16 along the outlines of their configurations, and assembling and joining them into a three-dimensional configuration, thereby making a three-dimension paper model of the airbag 10.

The applicant then sketched up the 3-D model of the airbag as shown in Figs. A1 to A3. In addition, Fig. A4 illustrates a condition where the paper model of the airbag would be mounted into an instrument panel as shown at 2, in Figs. 5 or 6 of the present invention. In the Fig. A4 illustration, the airbag 1 according to the present invention is replaced with the 3-D paper model of the airbag 10 according to *Krickl* and that combination is illustrated in Fig. A4. As shown in that figure, the airbag of *Krickl* does not expand to contact the abdomen of the occupant.

In view of the foregoing, the applicant submits that an airbag having the structural and functional limitations recited in amended Claims 1-6 would not have been obvious to one of ordinary skill, in view of JP '795 and *Krickl*. Neither reference discloses an airbag configured in the manner claimed, so that a rear face portion of a lower base cloth is more extended toward the abdomen than the rear face portion of an upper base cloth. Accordingly, the present claims define patentably over the applied art.

The foregoing is submitted as a complete response to the Office action identified above. This application should now be in condition for allowance, and the applicant solicits a notice to that effect..

Respectfully submitted,



Roger T. Frost
Reg. No. 22,176

KILPATRICK STOCKTON LLP
1100 Peachtree Street, Suite 2800
Atlanta, Georgia 30309-4530
Direct Phone: (404) 745-2402
Direct Fax: (404) 541-3208
Docket: 44471-262265 (13700)

Version with Markings to Show Changes Made

Amendments in the Specification

In accordance with 37 C.F.R. 1.121(c) the following version of the specification as rewritten by the foregoing amendment shows all the changes made relative to the previous version of the specification.

The paragraph beginning at page 2, line 6 is replaced :

In view of such a drawback, there has been proposed another [one] airbag such as shown in Fig. 1 and as disclosed in Japanese Patent Application Laid-Open No.9-99795. An airbag [A] as disclosed in the publication is formed such that two upper and lower base cloths (fabrics) B and C are put one on another and peripheral portions thereof are joined through sewing or the like[, it]. That arrangement has an advantage in that the number of parts is reduced and workability is improved.

The paragraph beginning at page 2, line 13 is replaced:

In such a conventional airbag A, however, since the upper and lower base cloths B and C are set to the same shape, there is a possibility that, when the airbag A is inflated, a space or gap occurs between the inflated or expanded airbag and the abdomen H1 of a vehicle occupant H. Also, as shown in Fig. 2, there is a possibility that, [in a state that] when the occupant H [seats] sits on a front side seat and he/she abuts on the lower base cloth C, the airbag A is pressed by the breast H2 of the occupant H to be displaced in a direction G.

The paragraph beginning at page 3, line 10 is deleted and replaced with the following:

To achieve the objects, according to a first aspect of the present invention, there is provided an airbag formed by joining two base cloths constituting an upper piece and a lower piece to form substantially closed box like shape, comprising: an upper base cloth having a first rear face portion opposed to an occupant of a vehicle in an inflated state of the airbag, an upper face portion continuously and substantially perpendicularly disposed with the first rear face portion and two first side portions each connected to the first rear face portion and the upper face portion so that the upper piece is formed in generally box like shape, wherein the upper piece comprises an upper joining line ~~[defied]~~ defined between the first rear face portion and the first side portion; and a lower base cloth having a second rear face portion opposed to the occupant in the inflated state of the airbag, a lower face portion continuously and substantially perpendicularly disposed with the second rear face portion and two second side portions each connected to the second rear face portion and the lower face portion so that the lower piece is formed in a generally box like shape, wherein the lower piece comprises a lower joining line defined between the second rear face portion and the second side portion, wherein the lower joining line is smoothly curved in such a manner that middle portion of the joining line projects toward the occupant, thereby forming a bulging portion at the second rear face portion.

The paragraph beginning at page 6, line 18 is deleted and replaced with the following rewritten paragraph:

The base cloth 3 is positioned on an upper side, and it is formed generally symmetrically, where generally triangular side portions 3b are formed on both sides of a rectangular upper face portion 3a and a generally [semi-circular] arcuate-sided rear face portion 3c is formed on one side of the rear end of the upper face portion 3a. Vent holes 7 for discharging gas after inflation of the airbag are formed at boundary portions between the upper face portion 3a and both side portions 3b.

The paragraph beginning at page 8, line 2 is deleted and replaced with the following paragraph:

In the base cloths 3 and 4, as shown in Figs. 4A and 4B, the upper face portion 3a and the bottom face portion 4a have the same shape, and a line extending from the side 8 to the slope side 9 and a line extending from the side 9 to the slope side 14 have the same shape, but the connection shape between each side portion 3b and the rear face portion 3c and [that] the connection shape between each side portion 4b and the rear face portion 4c are different from each other, and correspondingly the shapes of the rear face portions 3c and 4c are different from each other.

The paragraph beginning at page 8, line 11 is deleted and replaced with the following paragraph:

Next, the process for sewing the base cloths 3 and 4 to manufacture the airbag 1 will be explained. In the base cloths 3 and 4, since the full widths W3 and W4 are the same and the lengths and the inclination angles of the slope side 9 are the same as those of the slope side 14, the upper halves of the base cloths 3 and 4 are coincident with each other when the base cloths 3 and 4 are put one on another. The three sides of both the slope sides 9 and 14 and the sides 8 and 13 of the base cloths 3 and 4 are sewn. For example, the sewing work is performed so as to form stitches of the needle handling number of 3.5/cm using 8 number count yarn of nylon 66 with 21 number count sewing-machine needle. Incidentally, the conditions of the sewing work explained below are the same as this work. Next, when the side 12 and the side 19 are put one on another and are sewn, the base cloths 3 and 4 are respectively formed in a box shape.

Version with Markings to Show Changes Made

Amendments in the Claims

In accordance with 37 C.F.R. 1.121(c) the following version of the claims as rewritten by the foregoing amendment shows all the changes made relative to the previous version of the claim.

1. (Amended) An airbag formed by joining two base cloths constituting an upper piece and a lower piece to form a substantially closed box [like] shape, comprising:

an upper base cloth having a first rear face portion opposed to an occupant of a vehicle in an inflated state of the airbag, an upper face portion continuously and substantially perpendicularly disposed with the first rear face portion and two first side portions each connected to the first rear face portion and the upper face portion so that the upper piece is formed in a generally box [like] shape, wherein the upper piece comprises an upper joining line [defined] defined between the first rear face portion and the first side portion; [and]

a lower base cloth having a second rear face portion opposed to the occupant in the inflated state of the airbag,

a lower face portion continuously and substantially perpendicularly disposed with the second rear face portion and two second side portions each connected to the second rear face portion and the lower face portion so that the lower piece is formed in the generally box [like] shape, wherein the lower piece comprises a lower joining line defined between the second rear face portion and the second side portion[,]
and

wherein only the lower joining line among the upper joining line and the lower joining line is smoothly curved in such a manner that a middle portion of the joining line projects toward the occupant, thereby forming a bulging portion at the second rear face portion.

4. (Amended) An airbag formed by joining two base cloths constituting an upper piece and a lower piece to form a substantially closed box [like] shape, comprising:

an upper base cloth having a first rear face portion opposed to an occupant of a vehicle in an inflated state of the airbag, an upper face portion continuously and substantially perpendicularly disposed with the first rear face portion and two first side portions each connected to the first rear face portion and the upper face portion so that the upper piece is formed in generally box like shape, wherein the upper piece comprises an upper joining line defined between the first rear face portion and the first side portion; [and]

a lower base cloth having a second rear face portion opposed to the occupant in the inflated state of the airbag[,]
and

a lower face portion continuously and substantially perpendicularly disposed with the second rear face portion and two second side portions each connected to the second rear face portion and the lower face portion so that the lower piece is formed in the generally box [like] shape, wherein the lower piece comprises a lower joining line [defined] defined between the second rear face portion and the second side portion[,]
; and

wherein the only lower joining line among the upper joining line and the lower joining line is smoothly projected outwardly in its middle portion, thereby forming

a bulging portion at the second rear face portion[.] of the lower base cloth, so that the second rear face portion of the lower base cloth is more extended toward the occupant than the first rear face portion of the lower base cloth.